

**DETAILED ACTION**

This office action is in response to the preliminary amendment of January 29, 2007.

***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, 9-14 and 16-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Schall (USPN 3,781,141).

Schall discloses a diaphragm pump assembly having multiple embodiments which teach the features of the present invention. In particular, referring to Figs. 1, 2, 11 and 12, Schall discloses a pump housing 16 defining a pump chamber 19 having an inlet 11 and an outlet 12. There is a diaphragm 15 in the pump chamber and an intermediate bracket 17 (Fig. 2) having a fluid/air pressure operated actuator 30,32 connected to the bracket. The actuator has an actuating rod 29 extending through the

bracket and being connected to the diaphragm. The embodiment of Figs. 11 and 12 shows the pump control module having a direction control valve 102 directing fluid to the pumping chamber during a discharge stroke (Fig. 12) and to the lower or retraction chamber during a suction stroke (Fig. 11). There are end of stroke sensors (the nuts on the upper part of the rod (see near reference numeral 45 in Fig. 11). Schall discloses a detent/intermediate valve 103 responsive to the end of stroke sensors. Fig. 2 teaches that a pair of pressure regulators P-1 and P-2 can be placed in the supply lines for adjusting the fluid pressure applied to the pumping chamber and the lower chamber during the discharge stroke and the suction stroke, respectively.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schall in view of Habla (USPN 5,782,617).

As set forth above Schall discloses the invention substantially as claimed but does not disclose that the actuator includes a port which when pressurized urges said actuating member in a discharge stroke. Habla discloses a diaphragm pump which is driven by a fluid pressure operated actuator. The pump is driven in a discharge stroke by fluid pressure supplied to the pumping chamber through port 50 and also to the actuator through a port 21a. At the time of the invention it would have been obvious to one of ordinary skill in the art to include a pressurization port on the actuator in order to allow the pump to operate at higher pressures and against larger loads.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schall in view of Reynolds (USPN 6,241,487).

As set forth above Schall discloses the invention substantially as claimed. Schall does not disclose that the directional control valve, intermediate valve, the housing and the regulator valves form a unitary sub-assembly. Reynolds discloses a fluid pressure driven pump having intermediate and directional control valves. At the time of the invention it would have been obvious to one of ordinary skill in the art to form the valves and housing into a unitary sub-assembly without "the need for" external fluid conduits. This will eliminate elements in the form of the conduits and also make the pump less prone to damage or breakdown due to a broken line.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rupp discloses a similar fluid pressure driven diaphragm pump.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles G. Freay whose telephone number is 571-272-4827. The examiner can normally be reached on Monday through Friday 8:30 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles G Freay/  
Primary Examiner  
Art Unit 3746

CGF  
June 6, 2010